

WHAT IS CLAIMED IS:

1. A semiconductor package comprising:

a first circuit board including at least one conductive pad disposed on a major surface thereof;

5 a second circuit board including at least one conductive pad on a major surface thereof; and

a semiconductor die including a first electrical contact on a first major surface thereof and a second electrical contact on a second major surface thereof;

10 wherein said semiconductor die is disposed between said at least one conductive pad on said first circuit board and said at least one conductive pad on said second circuit board, and said first electrical contact is electrically connected to said at least one conductive pad on said first circuit board and said second electrical contact is electrically connected to said at least one conductive pad on said second circuit board.

2. A semiconductor package according to claim 1, further comprising terminals electrically connected to said first electrical contact and said second electrical contact of said semiconductor die, said terminals being disposed on at least one of said substrates.

3. A semiconductor package according to claim 1, wherein each of said circuit board is an insulated metal substrate.

4. A semiconductor package according to claim 1, wherein said semiconductor die is a switching power semiconductor device which includes a control terminal, said control terminal being disposed on one of said first major surface of said die and said second major surface of said die and electrically

- 5 connected to a conductive pad on one of said circuit boards, and electrically connected to a terminal disposed on one of said circuit boards.

5. A semiconductor package according to claim 1, wherein said semiconductor die is one of a MOSFET and an IGBT.

6. A semiconductor package according to claim 1, wherein said first electrical contact and said second electrical contact of said semiconductor die are connected to respective conductive pads via respective layers of a conductive adhesive.

7. A semiconductor package according to claim 6, wherein said conductive adhesive is one of solder and conductive epoxy.

8. A semiconductor package according to claim 1, further comprising an epoxy underfilling disposed between said circuit boards.

9. A semiconductor package according to claim 1, further comprising a heatsink disposed on one of said circuit boards.

10. A semiconductor package according to claim 1, further comprising at least one heatsink disposed on each of said circuit boards.

11. A semiconductor package comprising:  
a first thermally conductive substrate including a plurality of conductive pads disposed on a first major surface thereof;

5 a second thermally conductive substrate including a plurality of conductive pads disposed on a first major surface thereof;

a plurality of power semiconductor devices each including a first power contact on a first major surface thereof, a second power contact and a control contact on a second opposing major surface thereof;

10 wherein said plurality of power semiconductor devices are disposed between said first major surface of said first thermally conductive substrate and said first major surface of said second thermally conductive substrate, wherein each one of said contacts of said power semiconductor devices is electrically connected to a respective one of said plurality of conductive pads, and wherein said conductive pads on said thermally conductive substrate are interconnected to form part of a circuit.

12. A semiconductor package according to claim 11, further comprising output terminals connected to said power semiconductor devices through said conductive pads and disposed on at least one of said substrates.

13. A semiconductor package according to claim 11, wherein said thermally conductive substrate are insulated metal substrates.

14. A semiconductor package according to claim 11, wherein said power semiconductor devices are one of power MOSFETs and IGBTs.

15. A semiconductor package according to claim 11, wherein said power semiconductor devices are connected to said conductive pads via a conductive adhesive layer.

16. A semiconductor package according to claim 15, wherein said conductive adhesive is one of solder and conductive epoxy.

17. A semiconductor package according to claim 11, wherein said power semiconductor devices are connected in a half-bridge configuration.

18. A semiconductor package according to claim 11, wherein said power semiconductor device are connected to form a plurality of half-bridge configurations.

19. A semiconductor package according to claim 11, further comprising a control device for controlling the operation of said power semiconductor devices.

20. A semiconductor package according to claim 11, further comprising epoxy filling spaces between said first and second thermally conductive substrates.

21. A semiconductor package according to claim 11, further comprising at least one heatsink in thermal contact with one of said thermally conductive substrates.

22. A semiconductor package according to claim 11, further comprising a heatsink in thermal contact with each one of said conductive substrates.

23. A method for manufacturing a semiconductor package comprising:  
providing a first circuit board having at least one conductive pad disposed on a first major surface thereof;  
printing a paste of a conductive adhesive on said conductive pad;  
placing a semiconductor device on said conductive adhesive;

providing a second circuit board having at least one conductive pad disposed on a first major surface thereof;

printing a paste of a conductive adhesive on said conductive pad on said second circuit board;

10 placing said second circuit board over said semiconductor device such that said conductive adhesive on said second circuit board is in contact with said semiconductor device; and

applying heat to reflow said conductive adhesive.

24. A method according to claim 23, wherein said conductive adhesive is one of solder and conductive epoxy.

25. A method according to claim 23, further comprising filling spaces between said circuit boards with epoxy.

26. A method according to claim 23, wherein said circuit boards are insulated metal substrates.

27. A method according to claim 23, wherein each placing step is carried out by a pick-and-place method.